

Gilbert (S)

INTRODUCTORY LECTURE
To the Course on the
PRINCIPLES AND PRACTICE
OF
SURGERY,
IN THE MEDICAL DEPARTMENT
OF
PENNSYLVANIA COLLEGE.

Session of 1846-47.

BY DAVID GILBERT, M. D.

box 3.

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CORRESPONDENCE.

Philadelphia, November 10th, 1846.

Prof. D. GILBERT:

DEAR SIR:

The undersigned have been selected by the Class in the Medical Department of Pennsylvania College, to solicit a copy of your Introductory Lecture for publication.

In tendering this unanimous request,

We are respectfully yours,

B. D. HOLCOMB, Pennsylvania.
A. MACDONALD, Nova Scotia.
W. L. FOSS, St. Croix.
G. W. KNOBLE, Germany.
GEO. GUIER, Jr., Pennsylvania.
E. W. CUNNINGHAM, Tennessee.
WM. W. EASTABROOKS, N. Brunswick.
JOHN SMITH, Virginia.
H. BURKLEA, Illinois.
H. A. JEWETT, Massachusetts.
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C. J. FREELAND, North Carolina.
B. R. FITCH, Vermont.
JOS. B. SUDLER, Delaware.
A. F. M^yINTYRE, New York.
J. F. ADOLPHUS, Jamaica.
CHRISTIAN BLASER, Ohio.
JOHN E. WHITESIDE, Pennsylvania.

Philadelphia, November 11th, 1846.

GENTLEMEN:

I have received yours of yesterday, requesting a copy of my Introductory Lecture for publication.

In complying with the wishes of the gentlemen composing the Medical Class, I have only to regret that the Lecture is not more worthy of their acceptance.

With sentiments of regard,

I am truly yours, &c.

D. GILBERT.

To Messrs. HOLCOMB, MACDONALD, FOSS, }
KNOBLE, and others. } *Committee.*

Introductory—1846-47.

GENTLEMEN:

Time—that mysterious, onward, never-ceasing current, to which we are all subject, and cannot control, has brought us to the commencement of another scholastic period, when, in accordance with venerable usage, I appear before you, to deliver the inaugural address to the course of lectures on the PRINCIPLES AND PRACTICE OF SURGERY. In greeting you, the aspirants to the highest honors and privileges that medical institutions can confer, we felicitate ourselves on the fact that this College has passed through the anxieties of the doubtful position, usually occupied by new institutions—that the way is now perfectly open for her efforts, and that you are calling for her labours. The occasion, gentlemen, is one of deep and peculiar interest to us all; not only as marking the period when we, unitedly, commence the toils of the session, but become associated as *Preceptors and Pupils*, and enter into relations, which we trust will continue to be sources of mutual pleasure and profit to the end of life.

In teaching Surgery, I commence with its simple, and proceed to its more intricate truths. The arrangement of the course of lectures is adapted to the comprehension of those who are in the incipient stages of study, presenting subjects necessary to be known at the outset; having reference to the earlier demonstrations in the ANATOMICAL DEPARTMENT, and progressing collaterally with it. As it is a matter of the utmost importance intelligently to treat the primary disturbances of the vital powers, in cases of injury from violent external impressions, the first lectures will be devoted to the various grades of constitutional shock, with their complications;—to reaction, which may be perfect, imperfect or irritable, according to the state of the constitution; with the immediate treatment proper to all these conditions. Your attention will be directed then to the methods of examination, necessary to discover local injury. Next, as most intelligible, fractures and dislocations will be taken up, commencing with the simple and proceeding until every possible variety of injury to the skeleton and its articulations has been embraced—illustrated by drawings and morbid prepa-

rations, which compose in part the MUSEUM of the College. In the treatment, all the various forms of apparatus will be exhibited, described, applied, and the requisite operations for reduction and retention, illustrated in the presence of the class. From particular fractures and dislocations, I design to pass on to the consideration of the general characteristics—their indications of treatment—the process of reunion of bone—the several untoward results and consequences, and the modifications of treatment necessary in such cases. *Wounds* will occupy our attention next, commencing with those which occur in the several regions of the surface of the body, and proceeding through all the various grades until the most complicated and dangerous, involving the great cavities and most important organs of the body, are embraced. These will be exhibited on the dead body, the requisite operations for the suppression of hæmorrhage and readjusting the severed and displaced parts, illustrated, the different forms of dressing applied and the subsequent treatment detailed. The union of parts by *the first intention*, through the exaltation of the normal vital actions of the system, which are its reparative powers, will next occupy our attention. This will lead us to the discussion of *pathological principles* of especial interest to the surgeon, viz., *irritation, congestion*, and the all-important subject of INFLAMMATION. Inflammation will be considered, in this case, as an abnormal condition, and as such not necessarily present in the restoration of mere solutions of continuity. Its remote, exciting and proximate causes, its modifications in the various tissues, its local and general manifestations, its results and consequences, and local and general treatment, will all be fully discussed. Of the results and consequences, the different varieties of *abscess* and of *mortification* will receive especial attention, as to their pathology and treatment. Those modifications of inflammation, which are produced by specific causes, such as burns, scalds, frost-bite, syphilis, or from a depraved, cachectic state of the constitution, as scrofula, anthrax, erysipelas, &c., will be fully illustrated and their appropriate treatment given.

OPERATIVE SURGERY will claim our attention next, but not to the exclusion of those general plans of treatment by which we may avoid the too frequent use of the knife—which should be our last resort; and to succeed without it, should always be our *first aim*. As there are numerous cases, however, in which operative procedures become indispensable, we shall not lose sight of a thorough training in this department of Surgery. I will endeavour to teach

you *when* and *how* to operate, so that each of you may be qualified to perform your task skilfully, whenever an operation is rendered indispensable, by the circumstances of the case. This branch of Surgery will be illustrated by numerous drawings, and operations performed upon the dead subject. All the instruments used in surgery, ancient and modern, will be exhibited, and their adaptation and respective uses explained. Due prominence will be given to the details of MINOR SURGERY, so frequently neglected, and yet of such daily importance to the practitioner. The *operations* to which your attention will be specially called, and which I shall perform in your presence, are so numerous and diversified, that an enumeration of them would be tedious and uninteresting; let it suffice, therefore, merely to refer to their topography and general character. Commencing most conveniently with injuries and diseases of the cranium and its contents, requiring the *knife*, the *saw*, and the *trephine*—next the ear, and then the eye and its multitudinous and delicate operations, constituting a system of surgery of themselves;—the nasal cavities; the mouth; the pharynx and neck—the trachea gaping wide open when wounded, or its outlet spasmodically closed, when a foreign body is enclosed within it, requiring tracheotomy. But time would fail us, if we detained you, with the operations which become necessary about the thorax, abdomen, pelvis, the arterial system, the veins, the bones, the joints; or to speak of the numerous amputations, extirpation of tumours, and removal of kakoplastic deposits.

Without pretending, for a moment, to present, in addition to the regular course, an *adequate surgical clinic*, whenever the character of the case, however, and other circumstances are such as to render it compatible with the feelings and general advantage of the patient, I will present to the class as much practical surgery as can, with propriety, be brought before them. The experience of the last two sessions warrants me in saying to you that cases of this kind may be expected; which, with the ample surgical and medical clinics of that time-honored institution, the *Pennsylvania Hospital*, will afford you clinical facilities equal, and we believe superior, to those of any school in the country. We would caution you, however, not to indulge in this species of teaching to the *exclusion* of the regular instruction of the *College*. Your time is too precious, during the session, to make part of a crowd which can see little else than an effusion of blood, and at best gain individual facts only. Facts of themselves are not principles. To be valuable, a large number of facts

must be stored up and collated, and in this way only can principles be deduced; these principles you however want, and it is the business of the *College* to teach them.

Having given you this concise synopsis of the plan of my contemplated course of lectures on the Principles and Practice of Surgery, I propose directing your attention briefly to a few reflections on the

HUMAN CONSTITUTION—by which is meant the perfection in structure of the organs, the harmony which pervades their functions, and the integrity and strength of the vital power. This should constitute a prominent object of research in all your medical studies. It is the basis upon which your professional edifice will have to rest; and hence there is no subject of greater importance, or which demands of the surgeon higher considerations, during the whole period of his professional career.

When we examine the human organism with the light shed by HISTOLOGY, we find it composed of a few tissues and fluids, curiously arranged and ingeniously combined so as to form the numerous *organs*. These, in their aggregate, compose the individual; being in themselves simple in form, and admirably adapted to the performance of their respective functions. But when we take up the microscope, for the purpose of investigating the ultimate fibrillary structure of the tissues composing the organs, our minds are lost in wonder at the infinitesimal immensity which is brought into view in every part of the body; and thus unravelling the countless intricacies of the organs, and observing their functions, performed under the influence of the principle of *life*, our wonder is lost, in deep amazement, at the complicated yet harmonious operation of them all, at the same moment of time: for although passion may seem to convulse all that is within, and the elements may threaten all that is without, yet not a nerve forgets its mandate, not a muscle delays to act, not an artery to distribute, nor a vein to reconvey, nor an absorbent to imbibe, nor an exhalent to excrete;—but, like the wheels of a vast yet perfect machinery, under the control of a self-regulating power, each part moves on in its apportioned sphere and at its prescribed rate. And when we go one step further, and contemplate this body in its union with the “living soul”—their connection and reciprocal dependence upon each other; the incognite and mysterious manner in which external impressions are conveyed to the mind, and the wonderful control which the latter has over the body; by which its mandates are recognized and obeyed in the remotest parts of each member, we find ourselves

overwhelmed by mysteries altogether beyond our comprehension. When therefore in man, thus "fearfully and wonderfully made," the structure and harmony of the organs are unimpaired, the nervous power abundant, the blood composed of its normal constituents and in proper quantity, the organs enjoying their peculiar mode and quantum of irritability, and the appropriate stimuli are furnished; then all the organic functions will be in full exercise, and the individual is endowed with a *good constitution*. This may be augmented in its power of endurance or vital resistance, and hence we hear it predicated of such individuals that they have a strong, a robust, or a vigorous constitution. Any want of equilibrium, however, in their original development and energy, or functional endowment, or subsequent impairment of either, give rise to differences in the constitution of another character; hence we hear of a delicate, a feeble, a slender, an elastic, a broken down, a shattered, a depraved constitution.

The constitution is also varied, in different individuals; according to age, sex, condition in life, mode of living, occupation, physical and moral training, and in the same person from week to week, or from day to day, precisely as the ascertained laws which govern the operation of agents upon the system are conformed to or transgressed—there being a necessary connection and mutual dependence among all the organs of the body, and also particular relations between them and the objects of inanimate nature. This connexion and dependence, and these relations, can never be infringed without suffering. Man cannot escape these laws. They pertain to his existence; they are the ordinances of the Creator himself.

Early physical culture, when in conformity with these laws, exerts an important influence upon the formation of a good constitution. At the period of infancy the provision made by nature for its sustenance, should be its only aliment; the tender sensibilities of its skin should not be shocked by exposure to a low temperature from insufficient clothing; which, when properly provided, encourages the circulation in its flow towards the surface, and in its distribution equally over the whole system. Its sleep should not be disturbed; and every thing calculated to interfere with its repose should be banished from the nursery. In this way its introduction into its new state of being will be easy, and its nascent faculties properly developed. The constitution of the future man, as well as his just proportions and gracefulness of form, may be laid in infancy. A *light and easy dress*, which gives

freedom to the functions of life and action, permits regular and unobstructed growth—the tender fibres, untrammelled by obstacles imposed by art, will shoot forth harmoniously into the form which nature intended. The freedom of their movements, will not be impeded by bands or ligatures upon the chest, loins, or extremities. With such liberty, the muscles will gradually assume the fine swell and development, which nothing short of unconstrained exercise can ever produce. The body will turn easily and gracefully upon its well-poised base—the chest will rise in healthy and noble expansion, and the whole figure will assume that perfection of form, which marks so clearly the possession of a good constitution.

During the periods of youth and adolescence, exposure to pure air, sufficiency of clothing, rigid cleanliness, suitable amusements, careful intellectual and moral training, temperance in all things, mental purity, cheerfulness, agreeable occupation of the mind, the moderate exercise of the pleasing or elevating passions and emotions, and especially, a regular alternation of bodily and mental activity, will invigorate the constitution as years flow apace, and fit the individual for vigorous physical and intellectual action, and give him extraordinary vital resistance. In the subsequent stages of life, the same measures are necessary to the further development, as well as preservation, of constitutional vigor; we will, however, dwell more at length upon the more important and obvious of these; and

1. *Food*.—This is modified by the necessities of each individual; depending upon his habits, occupation, age, health, as well as the season of the year, and climate in which he lives. Each one should observe carefully what kind of food suits his own case. Generally that which is simple, nutritious, whether animal or vegetable, without heating or acrimonious properties, is best. As to quantity, just so much as will be sufficient to nourish without overloading the stomach and render digestion difficult. A sure guide may be found in the appetite itself, when natural;—always finishing a meal with some relish for more. Regularity in taking food, and allowing time for the digestive process to be nearly completed, before engaging in severe bodily exercise, or retiring to sleep, is also important. If immediately after dinner, an individual can write, or walk, or go about his ordinary business, with ease and pleasure; if after supper, his sleep be natural, and there is no head-ache or sickness next morning, but rises at his usual hour, refreshed, cheerful, and with a renewed appetite, he may then justly conclude that his diet

has been well regulated, and that his constitutional vigor is not deteriorating from this cause.

2. *Cleanliness*, exerts a powerful influence upon the constitution. It secures proper attention to the skin, which is one of the most important organs of the body—as its covering—the principal seat of sensibility—the regulator of animal heat, and as the most extensive emunctory. Through the skin, impurities, when upon its surface, may be absorbed and carried into the system, there to exert their deleterious influences in the performance of its necessary actions. Cleanliness removes all these;—stimulates the pores by frictions; prevents the pernicious effects of dampness; removes unpleasant odours, and mephitic vapours, arising from putrefying substances, which may be inhaled into the lungs. Thus, through cleanliness the atmosphere is renewed and purified; the blood properly refreshed; all the organs of the body stimulated, and enabled to perform their functions well; the mind enlivened and cheerful; all exerting a most happy influence upon the system in general, and strengthening its reactive or constitutional powers.

3. *Exercise*.—The proportion of exercise, as also its character, must be varied by the condition of the individual;—no one, however, can dispense with it wholly, without impairing the constitution. Alternation of bodily and mental labour will be found more favorable than long continued and severe action of the muscular system alone. Mere bodily labour, without *thought, object or interest*, as in the tread-mill, is as little related to the due exercise of the entire man, as intense application of mind, in a sedentary posture, and in a confined room. There must be a feeling of interest or responsibility combined with the bodily exertions—such pursuits as call for the regular and varied exercise of all the faculties, of body and mind, will be found to yield the proper stimulus to the former, and the most appropriate pabulum to the latter. Let there be a due share of mental excitement, then the powers of the constitution will expand with the occasion, and its capacity increase, with the mental ardor awakened. In such states of the mind, it grapples cheerfully and successfully with difficulties which would be quite appalling to the passive or uninterested person. The boy with his kite or gun, will exert all the powers of his muscles for five or six hours, or even a whole day, and scarcely complain of fatigue; while the same amount of muscular power exerted *against his will*, could not be secured by ordinary means. Last spring I was requested to visit a case of osteo-sarcoma, of extraordinary size, involving one entire lower extremity.

Having arrived at a high mountain, on the top of which the patient resided, the guide informed me that by leaving our horses, we might ascend by a path, and thus save more than a mile of the distance; expressing, however, his skepticism as to my *ability* to perform the feat. He was a *saw-miller*, and had informed me that the leg was as "*big as a saw-log*." Moved with anxiety to behold this pathological wonder, I bounded up the steep ascent towards the eyrie habitation of the patient, and when about half way my companion called to me to stop—being exhausted! The rationale is perfectly plain, being a "*leg like a saw-log*," the mental excitement was mine; had it been a saw-log equally extraordinary as to size, the victory would have been the saw-miller's! DR. DARWIN relates a case in illustration of this subject. A young man desirous of seeing his female friend, fifty-five miles off, decided upon a journey on foot, which, under the mental stimulus peculiar to the case, he performed without much difficulty, in one day. He found, however, that the object of his affections, was at a party ten miles further, to which he repaired on foot, without delay. Here were new causes of excitement, to revive his flagging energies. He joined in the pleasures of the evening, and danced most of the night with his wonted vigour and vivacity. Now had this performance been divested of those circumstances which operated as mental stimuli, undoubtedly he would have sunk down with exhaustion before he arrived at the end of his journey. Dr. Armstrong in a poem upon this subject says:

"He chooses best, whose labour entertains
His vacant fancy most. The toil you *hate*
Fatigues you soon, and scarce improves your limbs."

By these means the constitution may be perfected;—the appetite and digestion is good; the strength is astonishingly increased;—sleep sound and refreshing;—the lungs are strong;—the skin smooth and elastic, and the spirits lively; in short, all the bodily and intellectual powers are fully and integrally developed, and under certain circumstances, man becomes, as a recent writer has forcibly expressed it, "*one of those iron mortals, that cannot die with age, or infirmity—or be killed by man, rock or water, but must be shivered by a stroke of lightning.*"

But man is seldom found enjoying this perfect condition of constitutional vigour. In addition to his wilful disregard of the laws of his being, there are causes within and without, continually operating, whose tendency is to diminish or pervert this well-adjusted supply of vital power, deranging his organs, and impairing their functions, and thus deteriorating

the constitution. In this condition of the system, apparently healthy, there is a preternatural susceptibility to impressions, even from natural and appropriate stimuli. You all know what is meant by an irritable eye, stomach, &c. This disordered irritability at first, is confined to the nerves of the organ, or organs affected, from which it may extend to the whole nervous system; then there is present what we usually call an irritable habit or constitution. We must also bear in mind that there is an inseparable connexion and dependence of the nervous and vascular systems upon each other, so that it is impossible for either to be affected in any serious degree exclusively. Thus organic lesion or even impaired function of a single organ or part, may become the cause of general constitutional derangement, predispose it unfavourably to the reception of injuries, and the establishment of the reparatory process.

Every organ of the body, furthermore, is so constituted as to be in particular relation with external agencies, destined alike to nourish and preserve it in activity. The stomach e. g. requires food of a certain quality and quantity, that digestion may be performed properly; the lungs must have air of such temperature and constitution, as shall enable them to rid the blood of its carbon, and restore its purity; the eye and ear can bear light and sound of a certain intensity only, in the exercise of their functions of seeing and hearing, without pain and inconvenience. But not only is each organ impressed, in a particular manner, by external agents, but this impression may be transmitted to other, even distant organs, and if of an injurious character, the whole constitution may finally suffer. Thus the lungs suffer from cold and moisture applied to the skin; the stomach becomes disordered after injuries of the head, and the head is deranged by whatever disturbs digestion. This connexion and dependence of the organs upon each other, and these relations with objects in the world around us, are regulated by laws which must be obeyed, or the penalty endured. Hence if the muscles, or lungs, or stomach, or eye, or brain be over-tasked, we suffer in these parts. Thus the fervid preacher of the gospel, the eloquent advocate of innocence—the mariner exposed to the storm—the mechanic bent double in his shop—the female who plies her needle to the exclusion of the necessary exercise and sleep—the agriculturist whose toils are too protracted—or the man of study, leaning for hours over his desk, are all equally subject to these laws, and may impair or invigorate their constitutions in proportion as they fulfil or disregard them. The idea of preserving the constitution in a healthy

state, by obeying the physiological laws relating to one function, and disregarding those which govern the other functions, has been the procuring cause of a vast aggregate of human suffering. One, having become convinced of the importance of *dietetics*, for instance, pays his whole attention to the stomach and other organs of digestion; and, with but little thought for the other functions of his body, thinks he has a fair prospect of health and length of days, by eating of certain particular articles, cooked in a certain particular manner, partaken of in a certain particular quantity, and at certain particular times and seasons. Another, having got the notion that *exercise* is the principle thing, eats a hearty meal, at ten o'clock in the evening, goes to bed at eleven, sleeps in a bedroom seven by nine, with the door shut, and then believes that his accustomed walk in the morning will set all at rights again. Another, having listened to a philosophical explanation of the death of 140 Englishmen in the Black Hole at Calcutta, has come to the conclusion that *fresh air*, and plenty of it, will confer immunity from all sorts of diseases; and therefore he sleeps with his bedroom window open the year round, and when he is by and by brought down with inflammation of the lungs, or rheumatism, he wonders what it can all mean, when he has taken such good care of his health! Another, believing that health depends entirely upon the *attention he bestows upon the skin*, spends an hour, morning and evening, undressed and in a cold room withal, scratching himself with a card or flesh brush, and performs his ablutions with oriental exactitude; but nevertheless, eats anything and everything, in season and out of season, goes all day with his feet wet, and then when the dyspepsia gets hold of him, he wonders what it can possibly mean, he too has taken such provident care of his health!!

These considerations prove the intimate relation and sympathy which exist between different and distant parts of the body, and show us that the healthy development and constitutional stamina of that body, can only be insured by an observance of the laws which regulate and govern all its functions.

We may, from what has been said, infer that constitutional vigour generally implies power of resisting disease. Therefore constitutional debility or impairment, implies enfeebled or impaired power of resistance. In the latter condition, the action of the heart is enfeebled, the tone of the arteries is impaired, and there is often present unusual irritability of the nervous system.

The following are the principal causes which impair the

constitutional powers of man, and are those usually denominated predisposing, when speaking of the ætiology of disease :

I. *Imperfect nourishment*, whether from defect in the quantity or quality of the food, or from incapacity of the digestive powers. We have already spoken of the importance of proper nourishment in the formation and maintenance of a good constitution. Certainly, nothing diminishes the powers of the system more than imperfect or improper alimentation, for nutrition will be arrested or greatly impaired, whilst absorption continues, and hence experience every where teaches that such are bad subjects for operations and accidents.

II. *Inhalation of impure air*. The lungs have not the same omni-digestive power over the different kinds of air, which the stomach has over the immense variety of animal and vegetable food presented to it. There is but one element to keep up the vitality of the lungs, and that is oxygen, which enters in a fixed and definite proportion, into the composition of the atmosphere, which we inhale at every breath. Whenever, therefore, the proportion of oxygen is diminished, or its due supply withheld, or vitiated by the presence or admixture of noxious gases, the lungs cease to perform their functions aright, and with them the heart and its blood must also suffer. The injurious effects of the inhalation of impure air, are apparent in the pallid, cachectic complexion of the inhabitants of the crowded parts of large cities. How do they contrast with the ruddy visage of those who inhale the pure air of the country ! But especially do those suffer in constitutional vigour, who live most of their time in the damp cellars of cities, and in their densely crowded courts and alleys, in which refuse animal and vegetable substances are undergoing decomposition, or when crowded together in illy-ventilated apartments. Such are always bad subjects for injuries, surgical operations, or disease.

III. *Excessive exertion of mind or body, without sufficient rest or sleep*. Exercise, as we have already said, is beneficial to both body and mind ; but when it exceeds what the strength can bear, or rest can recruit, the animal functions are exhausted, and lose their balance ; tone is impaired, nervous excitability takes the place of strength, congestions ensue, and various organs are on the brink of disease. Thus also, by long continued mental application, repeated from time to time, with increasing intensity, and the almost total neglect of exercise in the open air, a train of nervous and stomachic affections are brought on, which unfit man's constitution for ordinary resistance to external impressions.

IV. *Long continued heat or cold.* The debilitating effects of heat are remarkably exemplified in the inhabitants of hot climates, and the warm seasons in temperate latitudes; in persons occupying over-heated apartments, or using feather or down beds, rising late, &c. The muscles, and with them, the heart and arteries lose their power and tone; the capillary system becomes relaxed; perspiration is profuse, and the internal organs cannot bear the stimulus of the blood which has lost more than usual of its water, and too little of its oxygen. Cold, occasionally applied, invigorates, because it is followed by a healthy reaction, in which the vital powers are exercised and exalted. But when long continued, its sedative and debilitating influence becomes permanent, causing internal congestions, and directly lowering all the vital energies. It is frequently observed, that injuries and operations are not borne well, towards the close of very severe winters; therefore, all serious cases of operations, when practicable, should be postponed until the mild warmth of spring has revived the energies of the system, and equalized its various functions. This should be observed, the more carefully, amongst the lower orders, whose means do not enable them to protect themselves sufficiently against the inclemencies of the season; and in the aged, whose vital resistance is feeble, independently of the influence of long continued heat or cold.

V. *The habitual use of intoxicating drinks.* There is probably no source of vital depression, that is more prolific in its constitution destroying effects than this. It predisposes to inflammatory seizures of the most intractable character, causing many a victim to sink, after accidents and operations, which would be comparatively trifling in a sober subject. Nor can we wonder at these effects of such powerful agents, when we consider the unsound state of structure and function, which they necessarily induce, not only in the stomach, liver, and kidneys, the organs which they most directly affect, but, entering the mass of the blood unchanged, and carried with it to every part of the system, the whole organism is depraved. Such constitutions, may well be, (as they often are,) compared to ropes of sand. In these, there is no surplus of vital power, for the exercise of the reparatory process; they are perpetually treading the brink of that precipice, which hangs over disease, and from which a trifling shock or injury may precipitate them into irrecoverable ruin.

VI. *Excessive and repeated evacuations.* The debilitating effects of a *large* loss of blood, need no explanation; but the injurious influences of habitual losses, if they be more than the system can speedily repair, are still greater; for a state of

anemia, as well as cachexia is induced, the functions become depraved, and a trifling injury may suffice to develope very serious consequences. Various hæmorrhages and discharges, menorrhagia, hæmorrhoids, diarrhœa, and other fluxes, if in excess or long continued, reduce the powers of the constitution, and consequently, the capacity to recover from injuries.

VII. *Previous debilitating diseases, and the treatment used to remove them.* During convalescence, the body is yet enfeebled in all its parts, and requires peculiar care. Its functions are but just resuming their balance, and have neither the capacity to act fully, nor the power of resistance, which are the attributes of full health, and hence do not sustain injury well.

VIII. *Diminished or impaired tone of any organ,* tends to destroy the healthy equilibrium, and favour a state of morbid irritability of the whole system. This may be the result of previous diseases, independently of the weakening influence just noticed. It may also arise from constitutional predisposition to certain diseases in certain parts, or organic disease already existing in the body in a latent state.

IX. *Hereditary peculiarities*:—as a predisposition to disease of the brain, lungs, circulating system, &c. Such persons are peculiarly liable to suffer. Every injury or operation, may become the exciting cause of the particular form of disease to which they are thus predisposed.

X. *Age* exerts an important influence upon the constitution. The peculiarly irritable state of the infant's organism is well known. In old age the nutritive function becomes impaired: the blood-vessels lose their proportion and mutual adaptation—the capillaries their vital susceptibility as evinced in the blush of youth—all favouring morbid tendencies, requiring caution in deciding upon extensive operations, and the most sedulous attention after severe injuries. Or, if instead of the organs of circulation, we take the alimentary, the respiratory or urinary apparatus, we shall here, too, find changes induced by age which predispose unfavourably to recovery from anatomical lesions.

There are also causes of impaired constitution, of a somewhat opposite character,—characterized by vascular fulness or activity—as full living with insufficient exercise, and other causes favouring a plethoric state of system. This condition, sometimes called “*rudd health*,” is a forced state, in which the nutrient powers are tasked to the utmost, struggling with a surplus of diet and stimulants, and ridding the body of both, by the action, at its full stretch, of every excreting organ. Here there is no surplus of vital power, for the ex

ercise of the recuperative energies of the system when required to contend with the immediate effects of severe lesions.

The peculiarity of the system called *TEMPERAMENT*, arising out of a predominance or defect of some function, should be noticed in considering the state of the constitution in reference to *surgical practice*. The *Lymphatic* temperament is characterized by fine, light, and straight hair, light coloured iris, pale complexion, a full and puffy outline, muscles soft and inelastic, movements sluggish, sensibility dull, and exhibiting, generally, a predominance of the white fluids and tissues over blood and muscle. Persons of this temperament have sluggish circulation, weak pulse, cold extremities, and tolerate stimulants better than the more excitable. They do not bear the privation of food or the loss of blood so well, and the recuperative powers, generally, are more feeble than in the other habits of body.

In persons of *Sanguine temperament*, the skin is flushed and ranges from a lively to a brownish red; hair from amber colour to black, often crisped; great activity of blood-vessels and heart; full and ample chest; large and well proportioned limbs, and vigorous muscles. These are able to endure fatigue, and are fitted for strength and activity. But they must be continually careful to preserve the nice balance and adjustment of their organs; for if they indulge in excess, or are exposed to sudden changes of temperature or of climate, become the subjects of severe external injury, or abruptly change their habits or mode of living, they will suffer from violent inflammation and fever.

In the *Bilious temperament*, sometimes called the *melancholic*, there is probably a defective action in the biliary or digestive organs. It is commonly characterized by a dark skin and gloomy disposition. The mental operations of such persons often receive a colouring from the manner nutrition is performed, especially if they lead a sedentary life, or overtask their minds by much study.

In the *Nervous temperament*, there is a spare habit of body, features well defined, limbs small, senses preternaturally acute, and the mind is readily excited to displays of vivacity and extremes of disposition. This temperament may be, to a great degree, acquired by long continued mental labour and deficient bodily exercise. It seems to depend upon a want of proportion of some properties of the nervous system, and therefore when well characterized, impairment of this system is produced by comparatively slight causes.

These several temperaments may be, and frequently are, variously modified and combined. They are also influenced

by sex and period of life, e. g. in infancy and in females the *lymphatic* is observed most frequently; in adolescence and early manhood the *sanguine*; in maturity of life the *bilious*; and in the decline of life, the *melancholic* for males, and the *nervous* for females.

The term *diathesis* is used to express a special morbid tendency in some organ, or system of organs, as the scrofulous, and others. This, as well as the temperaments, should always enter into the account, whenever, in surgical practice, we find it necessary to weigh accurately the capabilities of the constitution.

The influences of the *passions* and *emotions* of the mind are so varied and numerous, that our present limits allow us merely to cast a glance at them.

Whilst cheerfulness, joy, hope, love, and rapture, enliven, elevate, invigorate and sustain the constitution, and qualify it to endure the severest shocks—the opposite, viz., envy, jealousy, anger, hatred, revenge, scorn, fear, and despair; depress and degrade it. When these passions and emotions are constantly excited and inflamed to the utmost—in pursuing objects of low desire with avidity—in the failure of ill-concerted plans; when enterprises are counteracted, and projects rendered abortive; in the anxieties in the pursuit of fame, pleasure and wealth; in the remorse attendant upon crime, and losses by immoral pursuits; in disappointed affection; in the corroding pangs left by degrading and polluting pleasure; and a number of other causes which afflict the heart, shock the understanding, and prey upon the intellect; we may look for the evidences of a waning constitution.

I selected this subject for the present exercise, gentlemen, because of its importance; for it is by knowing how much the constitution can endure, that the common, as well as the most splendid results of surgery are obtained. I direct your attention to it, thus early, that you may, from the commencement of the course, seek to understand it, when the beauties and wonders of the human organization are unfolded to you;—when the aggregate of the phenomena of life, and the harmony of the laws which govern them are explained; when you are made acquainted with the perversion of these laws, and the various diseases which are consequent upon their derangement; and when the numerous remedial agents by whose means these same derangements are readjusted, and the integrity of the organization restored, are brought before you.

The sum of the phenomena, resulting from injuries or following operations, depends upon the state of the constitution and the extent of lesion. Thus extensive lesion, in a

good constitution, may not produce greater disturbance of the healthy condition, than a trifling injury in one greatly impaired. In the former, both lower extremities may be crushed, so as to require amputation, and the patient recover ; whilst in the latter, death may ensue from the prick of a pin, or scratch of a thorn. The records of Surgery abound in such cases.

Considering these opposite results, it is plain that the student should avail himself of every means in his reach, to obtain a knowledge of the many phases of the constitution. This will enable him, in some measure, to anticipate consequences ; whilst at the same time he will know, that no case is certainly and perfectly free from danger. By a knowledge of the various modifications of constitutional endowment, he will decide whether much or little blood may be lost, or whether the nervous system has the ability to sustain the shock of an operation ; and whether inflammation requiring treatment, or the reparative process only shall succeed it.

Thus, when you take upon yourselves the responsibilities of the practitioner, you will proceed with circumspection—make it your business to know the evils which may befall your patients, and endeavour to avoid them, and although you cannot always command success, still it will be in some comparatively rare occasions only, that you will experience the bitter disappointment of finding that your efforts have turned out to your patient's disadvantage.

Gentlemen, I feel reluctant to leave you without an exhortation to summon your entire energies to the work of the session. Let not one, or any division of the several departments of study receive your attention, to the exclusion of the others. They are all necessary to scholarship in medicine : like light and shade, they run into and mutually sustain each other. The student preparing to practice either surgery or medicine successfully must attend to precisely the same elementary studies. As the practice of medicine is an indispensable prerequisite to good surgery, so is surgery quite as essential to the practice of medicine. This will require of you indefatigable and undivided attention. Let none of the influences, however specious or attractive, which surround you in this great city, prevail in drawing you away from the path of duty, which was pointed out so clearly last evening by my friend and colleague, Prof. ATLEE. The divergency of the path of error is small at first, but widens fast : avoid it—it leads to vanity—to imbecility—to ruin ! avoid it ! and the time spent here this session, may become the brightest parenthesis on the page of your professional history.

